AMENDMENTS TO THE SPECIFICATION

Please insert the following after the title on page 1:

This application is a Division of Application Serial No. 09/931,888 filed on 08/20/01.

Please insert the following on page 6, line 2 as follows:

According to an aspect of the present invention, an inspection apparatus of a target object to be inspected is provided. The inspection apparatus comprises:

a power source circuit (13A, 12A, 12B, 15) for applying a voltage to a part of the insulating film formed on an inspection electrode of the target object so as to form a predetermined potential gradient in at least a part of the insulating film, a fritting phenomenon being formed in the insulating film by the predetermined potential gradient so as to break a part of the insulating film;

an inspecting probe (12A) that is brought into electrical contact with the surface of a part of the inspection electrode, the insulating film of the part of the inspection electrode having been broken by the fritting phenomenon; and

a tester (13) connected to the inspecting probe so as to inspect the electrical characteristics of the target object to be inspected.

It is preferable that the inspection apparatus further comprises a current limiter (14D) for limiting the current flowing between the probe and the inspection electrode.

It is preferable that the power source circuit for forming a predetermined potential gradient in at least a part of the insulating film comprises:

a first probe (12A) and a second probe (12B) each brought into contact with the inspection electrode of the target object to be inspected; and

means (13A) for applying a voltage between the first probe and the second probe, the voltage serving to bring about a fritting phenomenon in the insulating film formed on the surface of the inspection electrode.

It is preferable that at least one of the first probe and the second probe is formed of at least one material selected from the group consisting of tungsten, palladium, and a beryllium-copper alloy.

It is preferable that the inspection apparatus further comprises a controller (15) for controlling the power source circuit, and a communication circuit (16) for connecting the controller to the tester.

It is preferable that the power source circuit (14) for forming a predetermined potential gradient in at least a part of the insulating film is incorporated in the tester.

It is preferable that the current limiter (14D) for limiting the current flowing between the probe and the inspection electrode is incorporated in the tester.

It is preferable that the power source circuit for forming a predetermined gradient in at least a part of the insulating film comprises:

a first probe (12A) and a second probe (12B), which are brought into contact with the inspection electrode of the target object to be inspected; and

a power source (13A) for applying a voltage between the first probe and the second probe, the voltage serving to bring about a fritting phenomenon in the insulating film formed on the surface of the inspection electrode.

Please replace the paragraph beginning at line 6 on page 17 and ending at line 9 on page 18 with the following amended paragraph:

FIG. 2 shows the construction of an inspection apparatus 10 according to the first embodiment of the present invention, in which is employed the principle of the fritting apparatus shown in FIG. 1. The inspection apparatus 10 according to the first embodiment of the present invention comprises a fritting apparatus 11 and a probe card 12, as shown in FIG. 2. The inspection apparatus 10 is connected so as to communicate with a tester 13 with power source 13A. On the other hand, the fritting apparatus 11 comprises a fritting circuit 14 serving to realize the fritting phenomenon and a fritting control circuit 15 serving to control the fritting circuit 14. The fritting control circuit 15 is connected to the tester 13 through a general purpose communication circuit 16 such as an RS or a GPIB. The probe card 12 is provided with a pair of first and second probes 12A and 12B, which are collectively brought into contact with an inspection electrode P arranged on the target object ~~W~~ to be inspected. It is possible for the number of pairs of the first and second probes 12A, 12B to be equal to the number of inspection electrodes P of the target objects (devices) ~~W~~ to be inspected. If a number n of inspection electrodes P are formed on a single device ~~W~~, it is possible to mount a number n of pairs of the first and second probes 12A and 12B on the probe card 12. The second probe 12B is used only when the insulating film O is broken by the fritting phenomenon. Therefore, in the following description, the first probe 12A is called an inspecting probe 12A and the second probe 12B is called a fritting probe 12B.

Please replace the paragraph beginning at line 10 on page 18 with the following amended paragraph:

The power source circuit 13B may ~~comprise~~ be considered as including the power source 13A, the fritting circuit 14, and the fritting control circuit 15 ~~it~~, all of which can supply power to a pair of first and second probes 12A and 12B.

Please replace the paragraph beginning at line 15 on page 24 and ending at line 8 on page 25 with the following amended paragraph:

Where the driver of the tester can be used as the fritting power source, it may suffice to mount a circuit for the relay 24F for connecting the fritting probe 12B to the ground as shown in FIG. 5. In other words, the inspecting probe 22A may be connected to the voltage power source (not shown) of the tester 23. The fritting probe 22B may be connected to the relay switch 24F. It is possible to use the I/O driver within the tester 23 for the control of the relay switch 24F. Whether or not the fritting can be performed by using the tester 23 depends on the power source current capacity of the tester 23. In terms of the software, it may suffice to add a program for the fritting to the program of the tester 23. Also, in terms of the hardware, it may suffice to add a relay circuit. Alternatively, it is possible for the tester itself to be provided with a fritting power source, the fritting circuit 14 and the fritting control circuit 15. These embodiments also produce the function and the effect similar to those produced by the embodiment shown in Fig. 2.

Please replace the paragraph beginning at line 14 on page 25 and ending at line 18 on page 26 with the following amended paragraph:

FIG. 6 shows the construction of the measuring apparatus used in this embodiment. The load (needle pressure) between a probe 51 and a wafer ~~W~~ 50 was measured by an electronic balance 52. The current and the voltage applied by a power source 53 were measured by using an ammeter 54 and a voltage indicator 55. For measuring the waveform of the fritting, an A/D converters 56 and 57 was utilized. The current and the power source voltage were measured and recorded. For the control of the probe 51 in the Z-direction, ~~used was~~ a piezo stage 58 having a maximum displacement of 100 μm was used. The piezo stage 58 was operated via a piezo driver 59. All of the electronic balance 52, the power source 53, the ammeter 54, the voltage indicator 55, the A/D converters 56, 57 and the piezo stage 58 were connected to a computer 60 via a communication circuit (GPIB, RS-232C). The control of the applied voltage and the stage position was performed via the computer 60, and the results of the measurement were recorded one by one. A loop of the voltage control, the voltage measurement, and the current measurement was performed repeatedly. A rate of the loop was about 10 times/sec. The measurement under high frequency was performed by using the A/D converters 56 and 57 so as to measure the power source current flowing through the A/D converters 56 and 57, respectively, and the power source voltage. The converted values from the A/D converters 56 and 57 were corrected by obtaining the relationship between these converted values and the measured values of the ammeter 54 and the voltage indicator 55 and by using the measured values of the ammeter 54 and the voltage indicator 55.